THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD S. MUKA

Appeal No. 1999-2335
Application 08/449,809[1]

REHEARING

Before ABRAMS, FRANKFORT[2] and GONZALES, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

ON REQUEST FOR REHEARING

This case comes before us again on request by the appellant for rehearing of our decision of August 31, 1999,

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[1] Application for patent filed May 24, 1995.

[2]Judge Frankfort was designated to this panel for the rehearing in place of Judge Meister, who has retired.

wherein we sustained the rejection of claims 1-7, 10-12 and 14-22 under 35 U.S.C. § 103.[3] It is the appellant's position that the panel erred in agreeing with the examiner that it would have been obvious to one of ordinary skill in the art to modify the Turner system by replacing the shelves upon which the substrates are supported during heating with the open trays of Yamabe. Upon reconsideration of this decision in the light of the presentation made by the appellant in the Request for Rehearing, we have come to the conclusion that our original decision on this matter should be modified in conformance with the following comments.

Independent claim 1 is exemplary of the appellant's invention, in that it requires that there be a substrate holding stack adapted to hold the substrates in a spaced generally "open stacked configuration" such that the sides of the substrates directly opposite one another are able to directly transfer heat between adjacent substrates. All of

[3]Not sustained were rejections of claims 1-7 and 9-22 under 35 U.S.C. § 112, first and second paragraphs, and a rejection of claims 9 and 13 under 35 U.S.C. § 103.

the other independent claims also contain a limitation which focuses on adjacent substrates being so positioned and oriented as to allow heat to be radiated between their facing surfaces. The claims stand rejected by the examiner as being unpatentable over Turner in view of Yamabe.

Turner discloses a substrate processing system that includes a plurality of heating chambers which are maintained at a desired temperature by heaters located in the chamber walls. Within each chamber are a plurality of vertically spaced substrate support shelves, each having a pair of dielectric mounts upon which the substrates to be treated are placed in spaced relationship from the shelves. In a continuous process, a loading system successively places unheated individual substrates onto the shelves and then removes them when they have been heated to the desired temperature. The shelves are made of heat conductive material and are of solid construction, therefore blocking direct radiation of heat between the faces of adjacent substrates. Once heated to operating temperature by the heaters in the walls of the chamber, the shelves continuously radiate heat to the faces of adjacent substrates so that the substrates are

"radiantly heated . . . uniformly from both sides, which provides for rapid and uniform heating" (column 5, lines 49-51).

Yamabe discloses a system in which a plurality of substrates are positioned on support shelves and then are loaded into a heating chamber in a batch, at which point the chamber is heated until the substrates reach the proper processing temperature. The Yamabe shelves have open centers and support the substrates only at their outer peripheries, which allows the faces of the substrates directly opposite one another to be in open relationship. A relatively large heat-absorbing mass is configured into the peripheral portion of each shelf. In operation, as the chamber is brought up to the desired temperature by the heaters in the chamber walls, heat is radiated inwardly toward the surfaces of the substrates. If left unchecked, the tendency would be for the peripheral portion of each substrate to absorb more heat than the central portion, as is illustrated in Figure 5, resulting in uneven heating of the substrate. The mass of material on the peripheries of the shelves counteracts this tendency by absorbing some of that heat. See column 3, line 67 *et seq.*;

column 5, lines 1-9; column 6, lines 44-46; column 7, line 29 *et seq.*

The dispositive issue in this case is whether it would have been obvious to one of ordinary skill in the art to modify the Turner system by replacing the solid shelves with the open shelves disclosed in the Yamabe system. We now are persuaded to answer this in the negative, on the basis of the following reasoning. Both systems utilize heaters located outwardly of the peripheries of the substrates and seek to provide even heat distribution across the exposed faces of the substrates, but they accomplish this in different ways because of the difference between continuous and batch processing. It is axiomatic that the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See, for example, ***In re* Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). In the present case, we fail to perceive any teaching, suggestion or incentive in either reference which would have led one of ordinary skill in the art to modify the

Turner system by replacing the solid heat radiating shelves with the open heat absorbing shelves of Yamabe. First, there is no explicit teaching or indication that it would be advantageous to utilize open shelves in the Turner system. Second, replacing Turner's solid heat-radiating shelves with Yamabe's open shelves would result in uneven heating of the substrates in the Turner continuous process system because the masses on peripheries of the open shelves would unnecessarily absorb heat. Thus, the even heating provided by the solid shelves in the Turner system would be compromised, which would have been a disincentive to one of ordinary skill in the art to make the proposed substitution.

We therefore conclude that the combined teachings of Turner and Yamabe fail to establish a *prima facie* of obviousness with regard to the subject matter of independent claims 1, 10, 14, 18 and 19, and we will not sustain the rejection of these claims under 35 U.S.C. § 103 or, it follows, the claims dependent thereon.

Upon rehearing, our prior decision is modified as follows:

The examiner's rejection of claims 1-7 and 9-22 under 35

U.S.C. § 103 is not sustained.

The decision of the examiner is reversed.

GRANTED

Neal E. Abrams Administrative Patent Judge	)	
Charles E. Frankfort Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
John F. Gonzales Administrative Patent Judge	)	

lmb

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